Applicant(s): Konrad WISSENBACH et al. Atty. Docket: 31583-212399 RK

IN THE CLAIMS:

Prior to examination on the merits, please amend the claims of the international

application as follows.

1. (Original) A method for smoothing and polishing surfaces by treating them with energetic

radiation (3), in particular laser radiation, in which the to-be-smoothed surface (1) is remelted

in a first treatment step using said energetic radiation (3) and employing first treatment

parameters at least once down to a first remelting depth (10), which is greater than a structural

depth of the to-be-smoothed structures of said to-be-smoothed surface and is $\leq 100 \mu m$,

wherein

in said first treatment step continuous energetic radiation or pulsed energetic radiation with a

pulse duration of $\geq 100 \,\mu s$ is employed and said surface (1) is remelted down to a first

remelting depth (10) of 5 to 100 µm.

2. (Original) A method according to claim 1, wherein in a second treatment step using said

energetic radiation (3) and employing second treatment parameters, micro-roughness

remaining on said surface (1) after said first treatment step is leveled by remelting down to a

second remelting depth (14), which is less than said first remelting depth (10), and by

evaporating roughness peaks (15).

3. (Currently Amended) A method according to claim 1 or 2, wherein said first treatment

parameters are selected in such a manner that no ablation of material occurs.

4. (Currently Amended) A method according to claim 2 one of the claims 2 to 3, wherein pulsed

laser radiation with a pulse duration of $\leq 1 \mu s$ is employed in said second treatment step.

5. (Currently Amended) A method according to claim 1 one of the claims 1 to 4, wherein said

surface (1) is remelted in said first treatment step down to a first remelting depth (10) of

approximately 10 to 80 µm.

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6. (Currently Amended) A method according to <u>claim 2</u> one of the claims 2-to 5, wherein said surface (1) is remelted in said second treatment step down to a second remelting depth (14) of maximally 5 μm.

- 7. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 5, wherein said surface (1) is remelted in said first treatment step multiple times in succession.
- 8. (Original) A method according to claim 7, wherein with each new remelting step, said first remelting depth is selected less deep than in the previous remelting step.
- 9. (Currently Amended) A method according to claim 7 or 8, wherein said energetic radiation (3) is led in parallel paths (6) over said surface (1) with successive remelting steps of a section (4) of said surface (1) being carried out with paths (6) turned at an angle.
- 10. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 9, wherein treatment in said first treatment step occurs successively in a multiplicity of adjacent sections (4) of said surface (1), with the treatment parameters being changed continuously or in steps towards the border of said sections (4) in such a manner that said first remelting depth (10) decreases to said border of said sections (4).
- 11. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 10, wherein in order to retain edges (13) on said surface (1), said first treatment parameters of said first treatment step are changed continuously or in steps in such a manner that said first remelting depth (10) decreases toward said edges (13).
- 12. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 11, wherein said laser radiation (3) is led on one or a multiplicity of meandering paths (6) over said surface (1).
- 13. (Currently Amended) A method according to <u>claim 2</u> one of the claims 2 to 12, wherein said surface (1) is impinged with protective gas during said first and said second treatment step.

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14. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 13, wherein treatment occurs with a beam cross section in form of a line or with a rectangular beam cross section of said energetic radiation (3).

- 15. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 14, wherein said to-be-smoothed surface (1) is preheated before remelting.
- 16. (Currently Amended) A method according to <u>claim 1</u> one of the claims 1 to 15, wherein said first treatment parameters are selected in such a manner that structures of significance of said to-be-smoothed surface (1) are retained during remelting.